Shielding: A Conceptual Framework for Responses to a Breach in Health Security

Dr Stephen Prior

National Security Health Policy Center,

Arlington, VA

The Challenge:

The real targets for terrorists are not the victims of the incident they are the survivors……

……the victims are the means by which the survivors are coerced.

The Response:

Our response must be based on fostering both physical and psychological resistance to and resilience from the terrorist actions

The Panicky Public

- **People do not routinely panic – even in disasters**
- **People do not know who to trust**
- **People always have symptoms of something**

1/3 will be ‘numb’ and will respond to leadership

1/3 will be ‘heroic’ but will require direction

1/3 will ‘panic’ and require significant resources

Disease Control

1. **Early Detection**
   - Disease Surveillance
2. **Containment**
   - Interrupt Disease Transmission
3. **Medical Responses**
   - Treat casualties, restore steady state

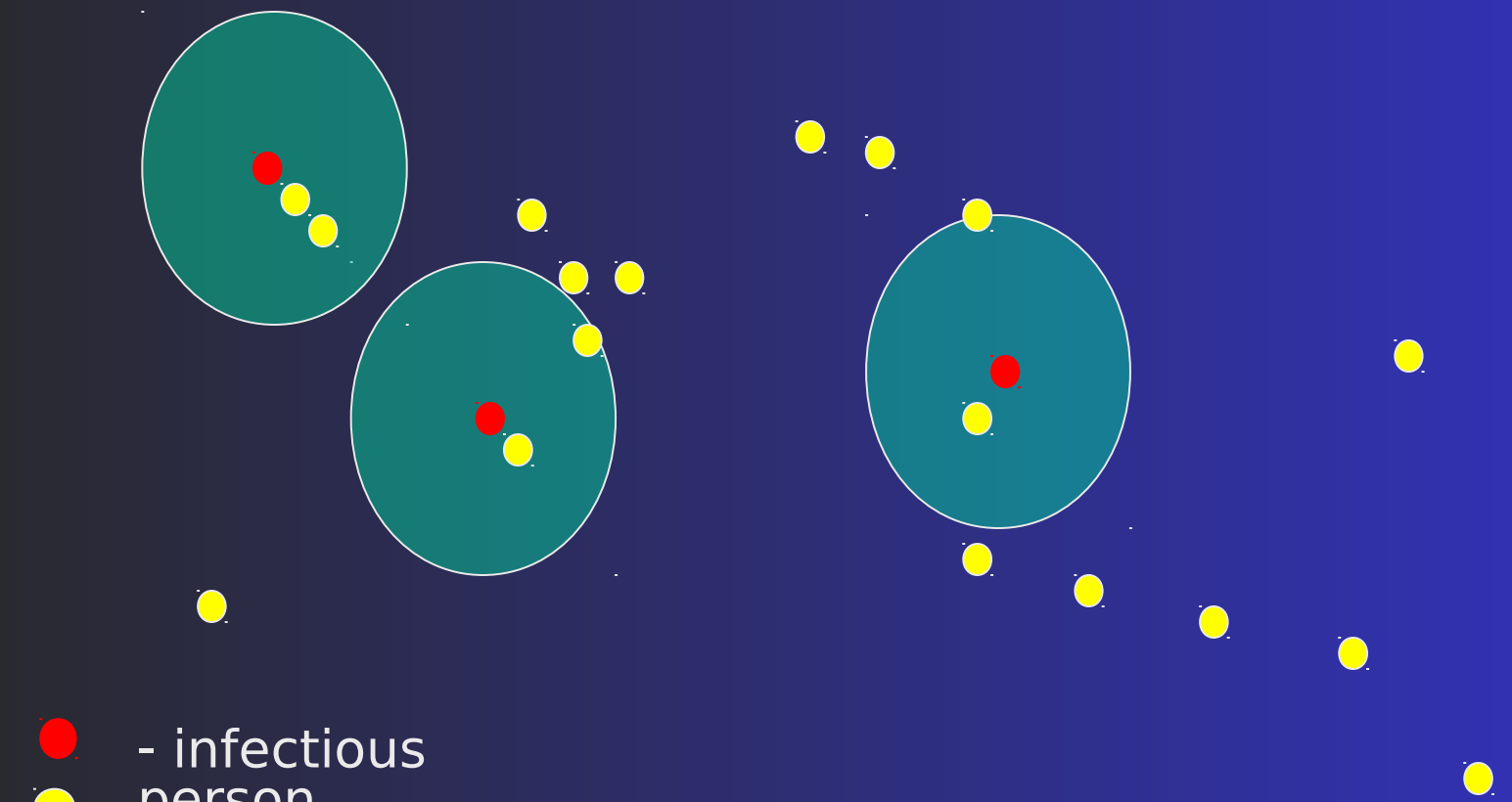
Disease Containment Principles

- **Disease Containment**
  - Key: Interrupt Disease Transmission

- **Isolate and treat infectious persons**
- **Treat exposed persons**
- **Minimize exposure of uninfected persons**

Effective Social Distance

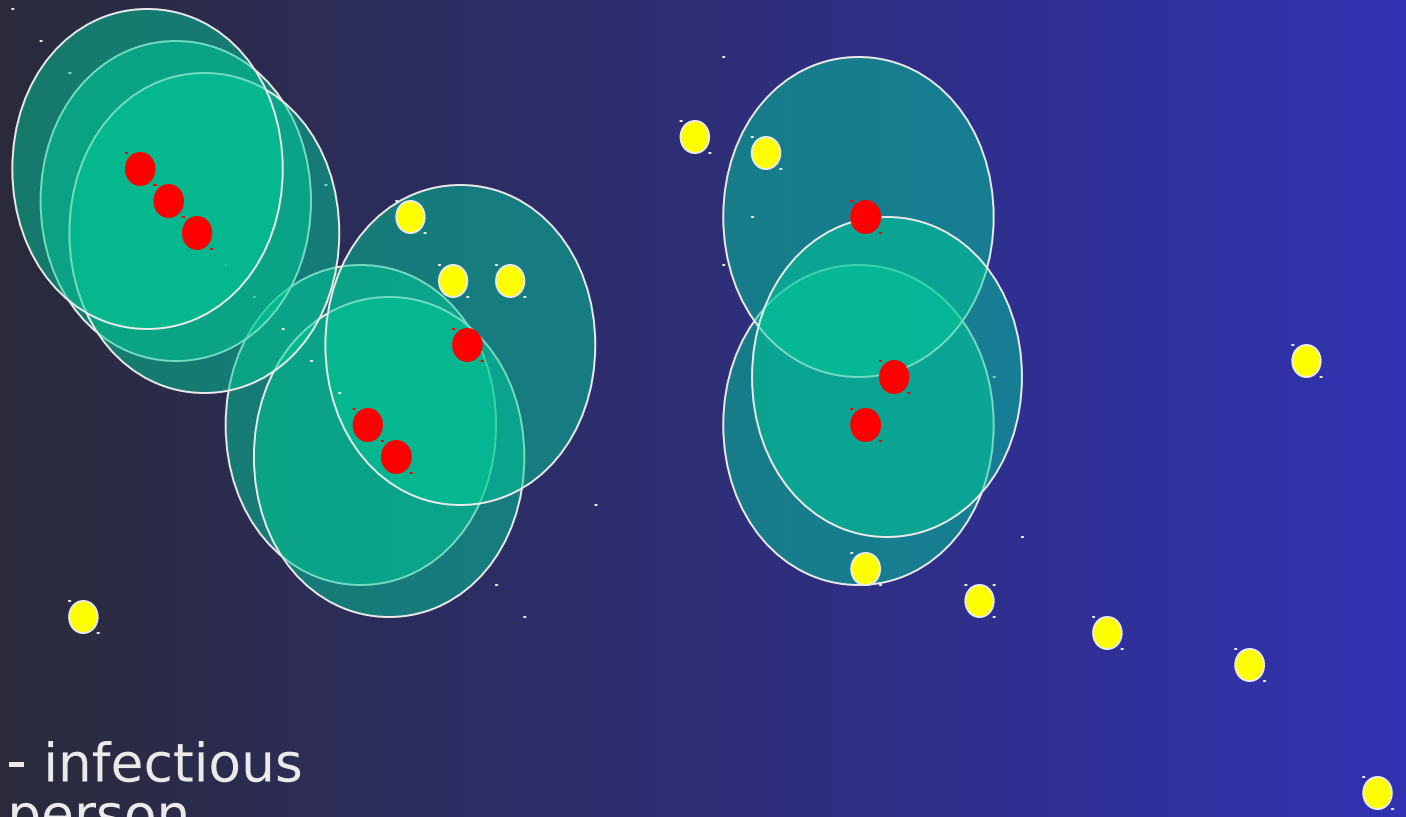
Disease Dependent



- infectious person

- unexposed person

Effective Social Distance



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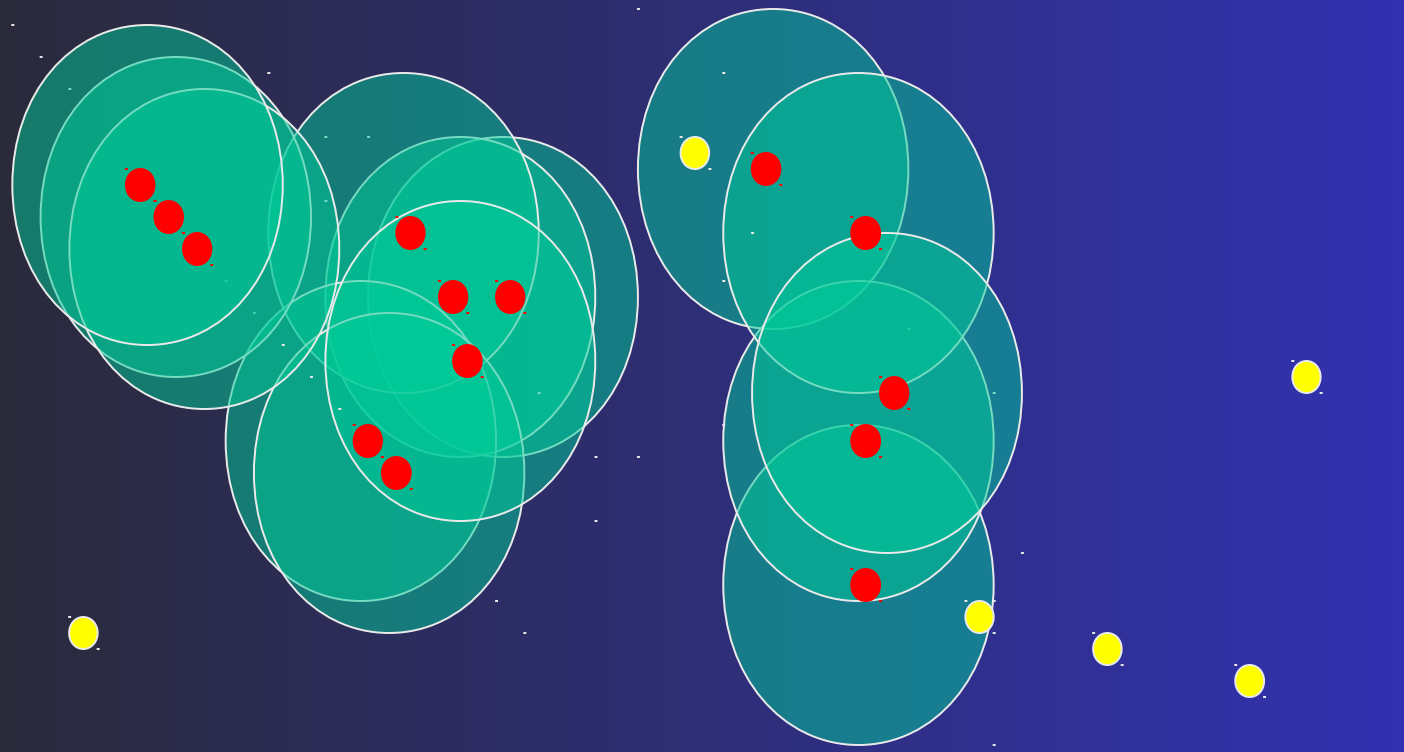

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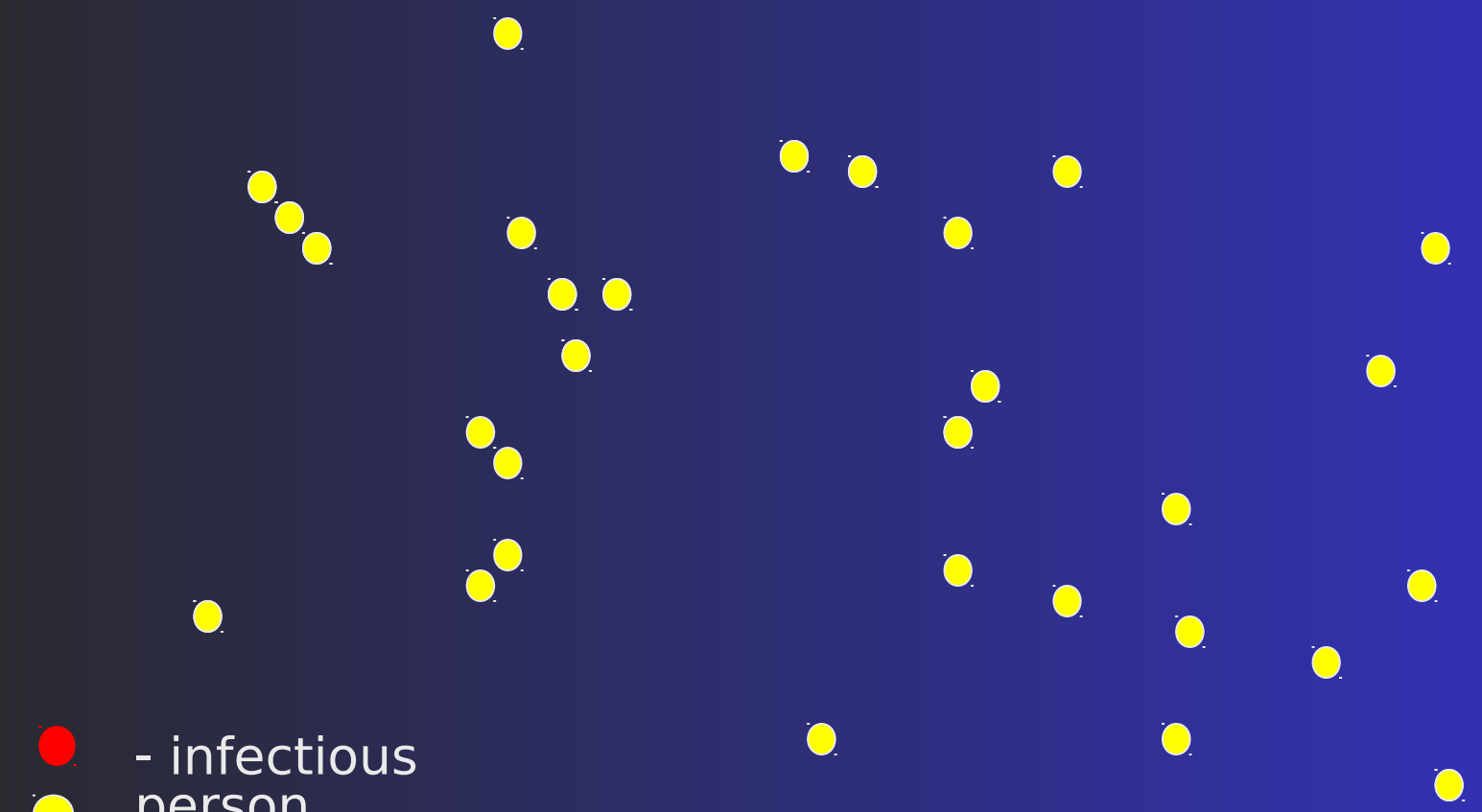
Effect of Increasing Social Distance



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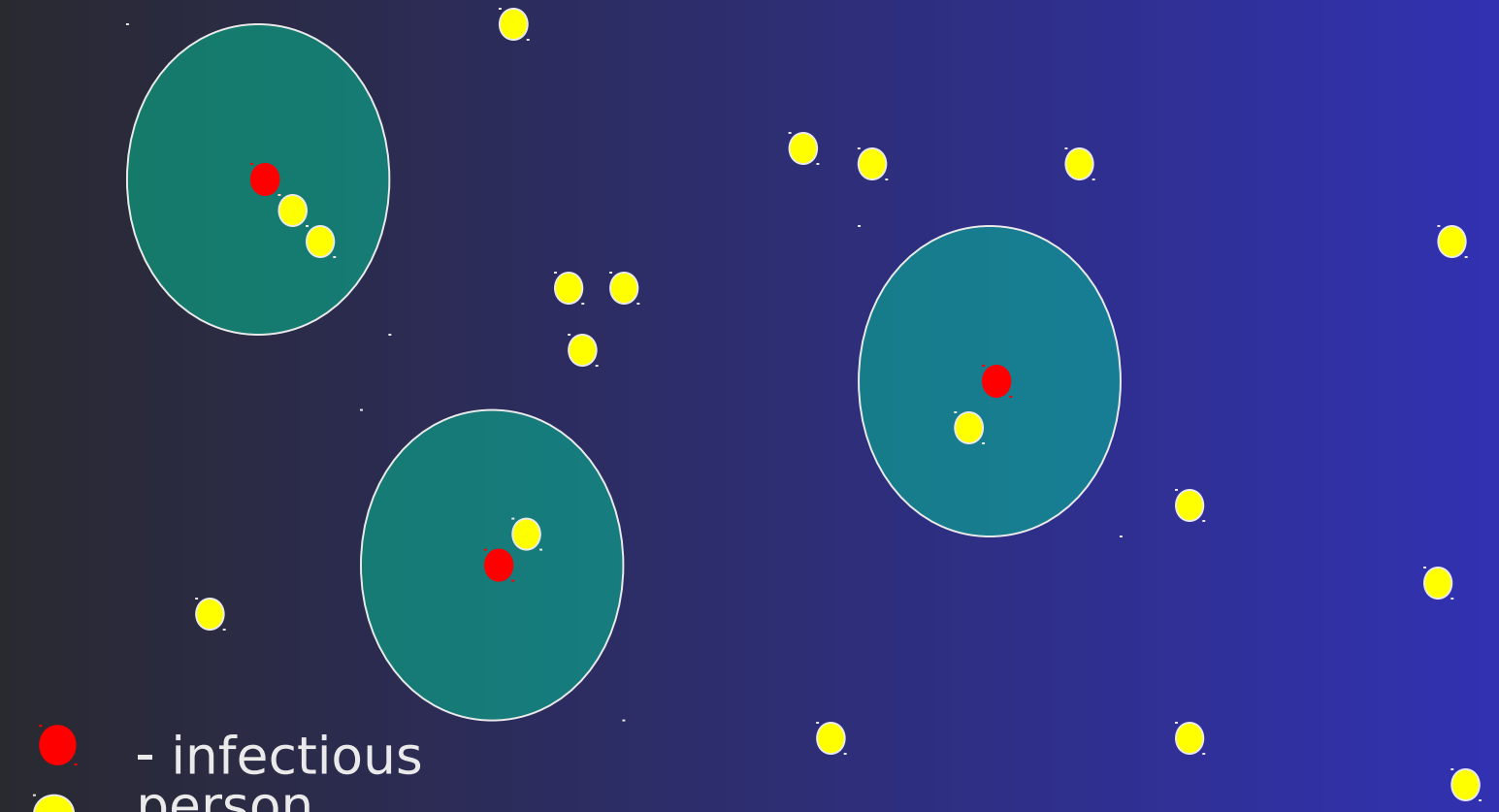

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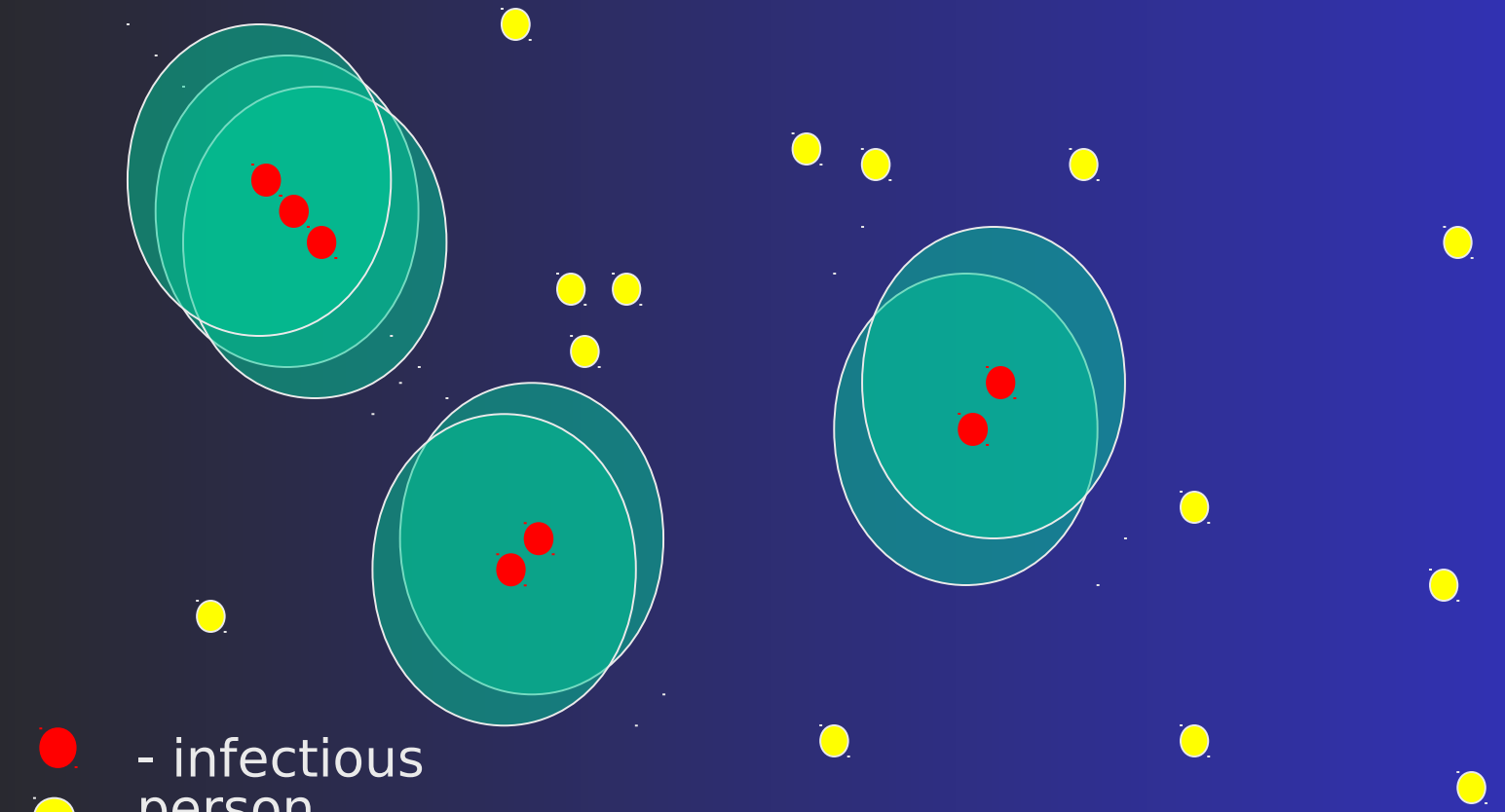


Disease Containment - Issues

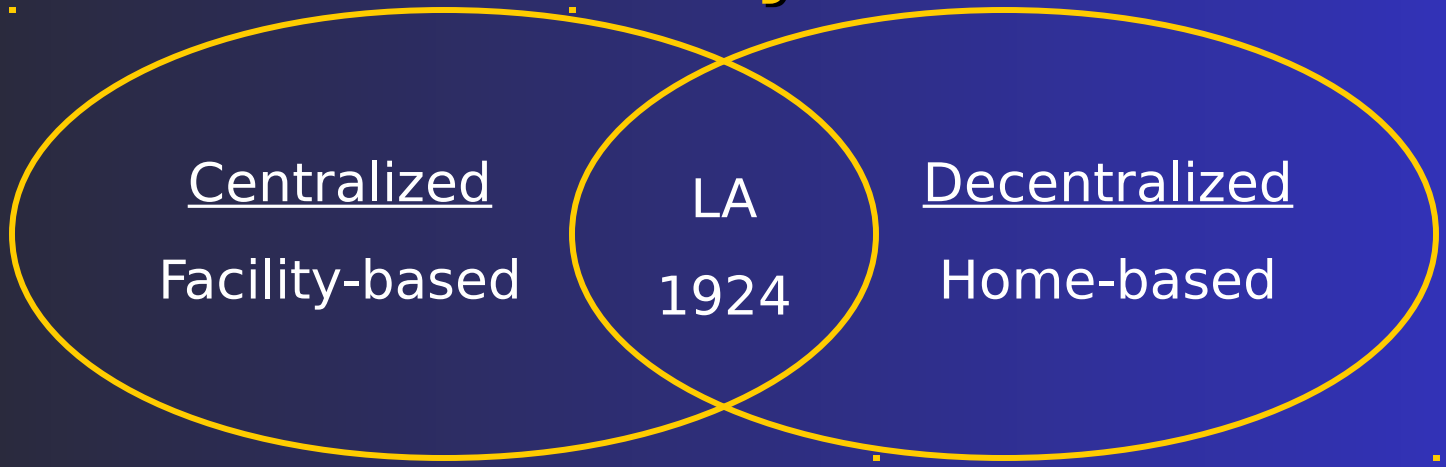
- **Early detection with rapid, appropriate response essential**
  - Careful deliberation with action triggers must occur pre-event
- **Containment measures must be proactive and coordinated**
  - Contact tracing with vaccinations/preventive antibiotics
  - Anticipatory media involvement
  - Preplan logistical support to maintain local infrastructure
  - Plan for needed healthcare surge capacity
  - Encourage voluntary self-isolation to increase social distance

Levels of ‘Quarantine’

Several ‘levels’ can be envisioned:

- Short-term, voluntary home curfew, known as shelter-in-place or shielding
- Restrictions of group assembly, e.g., school events
- Cancellation of public events
- Suspension of public gatherings, closing of public places
- Scaling back of air, rail, water, motor vehicle, and pedestrian travel
- Scaling back of mass transit systems
- *“Cordon sanitaire”* – a guarded barrier restricting passage into and out of an area

Quarantine: Likely Features



Requirements:

- Accurate information (Responders, Public, & Leadership)
- Disease surveillance & contact tracing
- Medical capability
- Restriction capability
- Sample analysis
- Maintain air, food, and water quality

Quarantine
Factors to Consider

- Is there a scientific basis?
  - Among Category A agents, only Smallpox, Pneumonic Plague, and some VHF's are transmitted person-to-person
- Is it practical and feasible?
  - Defined geographic area of risk
  - Resources to enforce and maintain
  - Time period required
- Do the potential benefits outweigh the risks?

Quarantine
Potential Adverse Consequences

- Increased risk of disease transmission in quarantined population
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- Mistrust of government
  - Civil disobedience → violence
  - Social stigmatization
  -
- Economic effects
  - Businesses in quarantined area
  - Businesses relying on goods and services from quarantined area

Shielding & Quarantine: Comparison of Features

Quarantine	Shielding
• Enforced/Coercive	• Facilitated
• Reactive	• Proactive
• Opaque	• Transparent
• ‘Top-down’	• ‘Bottom-up’
• Involuntary	• Voluntary
• Communication ‘poor’	• Communication ‘rich’
• Government imposed	• Government sanctioned

SARS Experiences

Canada

- Voluntary ‘Home Quarantine’ - Shielding
- >12,000 persons, less than 20 enforcement orders

Hong Kong

- Mandatory quarantine ‘Amoy Gardens’
    - 50% fled between notification & enforcement
- Detect & isolate patients, trace & quarantine contacts

Singapore

- Some quarantines, reduced social contacts, electronic tagging

China

- Multiple unidentified foci
- Delays in implementing quarantines

Summary of Key Points

- ✓ Disease control measures: Early detection, containment, & medical responses.
- ✓ Medical, practical, and feasibility considerations are important in the decision to implement any form of quarantine.
- ✓ SARS exemplifies many key aspects of a bioterrorism incident & control methods that may be employed.
- ✓ Mandatory and voluntary quarantines were used in SARS outbreaks with mixed success. ‘Shielding’ approaches in Canada proved very effective.